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IN THIS ISSUE

PAGE

Cotton Faces Up to New World Problems 119

Indices of Agricultural Production in the ERP Countries. 124

Land Reform in Formosa 130

The Development of an Eastern European Trading Bloc 135

FRONT COVER

U. S. Cotton for Export

A pile-up of cotton at Memphis, Tenn. The United States normally exports a large part of its cotton crop. Export problems are today of grave concern to the United States cotton industry. (Photo courtesy of U. S. Soil Conservation Service.)

BACK COVER

United States Consumption, Exports, And Carry-Over of Cotton, 1905–49

Despite the mounting consumption of cotton at home, stocks have accumulated in the United States when exports have declined.

Credit is given for photographs as follows: p. 121, Signal Corps; pp. 130–133, Joint Commission for Rural Reconstruction.

NEWS NOTES

Dr. Reinking Goes To Philippine Post

Otto A. Reinking of Cornell University, one of the outstanding plant pathologists in the United States, is now in the Philippines representing the United States Department of Agriculture as an advisor on plant diseases to the Philippine Department of Agriculture and Commerce.

Among the problems that will receive his early attention is the control of mosaic disease of abaca and the cadang-cadang disease of coconuts, both of which are causing serious loss to important export crops of the islands.

Dr. Reinking's assignment is made at the request of the Philippine Government. He is the second specialist sent by the Department of Agriculture this year to give technical assistance to Philippine agriculture. John V. Hepler, extension specialist of the Office of Foreign Agricultural Relations, left the United States in February.

Mr. Hadley is New Head Of Station Management Division

Evan W. Hadley is the new head of the Station Management Division, Technical Collaboration Branch, Office of Foreign Agricultural Relations, succeeding *Benjamin J. Birdsall*, who is now with W. R. Grace and Co. in New York City.

Mr. Hadley came to Washington from Peru, where he was director of the cooperative agricultural station at Tingo María. Dr. Hans Platenius replaces him there.

FOREIGN AGRICULTURE **ALICE I. FRAY, EDITOR**

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Cotton Faces Up to New World Problems

by A. W. PALMER

For more than a century and a half the lives of millions of Americans have been bound up with the fortunes of a single product of the land—cotton. Epic as its history has been and vital as it now is to the national well-being, cotton is essentially a commodity of the world—made so by its markets, its competition, and the routes that its shipping traces across the globe. Throughout most of the Nation's history, cotton growing in the United States has been predicated on exports' taking half or more of the entire crop. But two world wars have now gravely limited the ability of foreign customers to buy. How can adequate overseas markets be maintained? No easy answer is in sight, but the Department of Agriculture is at work throughout the world to gain the understanding needed in the effort to maintain them.

There was a day in 1784 when a zealous port collector at Liverpool seized 8 out of 14 bales landed from an American vessel, sure that so much of the staple could not have been produced by the infant nation! Little did he know a drama was then beginning that was to unfold over the years that lay ahead—the long westward spread of the American Cotton Belt in economic partnership with the many hundreds of mills springing up in a rapidly industrializing world. Nor in fact could anyone then have foreseen that in 50 years the American crop would reach a million bales, 4 out of every 5 of them destined for overseas, or that in still another 100 years, more than 1 bale out of every 2 would be grown to clothe the people of other countries. Yet, as million-bale crops became 10-million-bale and then 15-million-bale crops, this 1-to-2 proportion became the measure of the interdependence of cotton growers of the United States and the rest of the world. It is a simple truism that foreign trade is one of the major pillars on which the agriculture of the Cotton States was founded and on which, notwithstanding the rise of a huge textile industry at home, it continues to stand.

When the export demand fails, then its vital function is most clearly appreciated. Memories are still fresh of the early 1930's, when buying power waned abroad as it did at home. The generation that knew the year 1914 remembers also how war cut the shipping lanes to Europe and for a few hard months threw the market into chaos. Today the Commodity Credit Corporation and its kindred organizations would cushion such a shock, but not for long could they substitute for foreign markets. When exports persistently fall short, there is no escape from curtailment of the crop.

Two world wars, with barely 20 years between, have done violence to the comfortable position that America once held in the world's cotton trade. For the century and a quarter before 1914, the United States had been a debtor nation, borrowing heavily for its own development and owing Europe every year large amounts for interest and dividends as well as sizable bills for shipping and insurance services. Cotton, then the largest item in American export trade, went far to balance the account. Moreover, London, as the world's banking center, regularly came into possession, through triangular trade processes, of many of the dollars Americans spent elsewhere in the world. Payment was no problem to Europe then.

With World War I came a vast and fundamental change. The debtor United States became the creditor; the creditors, debtors. Despite this reversal, cotton exports continued to move out in volume for two more decades, helped by large-scale dollar loans abroad in the 1920's and by give-away prices and the increased rate at which the United States paid for gold imports in the 1930's. Even so, financial stresses and strains abroad were already appearing. The middle and late 1930's saw three of the United States' largest customers so pressed for dollars that they restricted their imports of American cotton and enforced the substitution of rayon. It saw new trade alinements growing out of the changed financial relations between the United States and Europe that gave great stimulus to cotton-growing in other lands. It saw a marked decline in Europe's export trade in cotton goods as the less-developed countries of the world put their own

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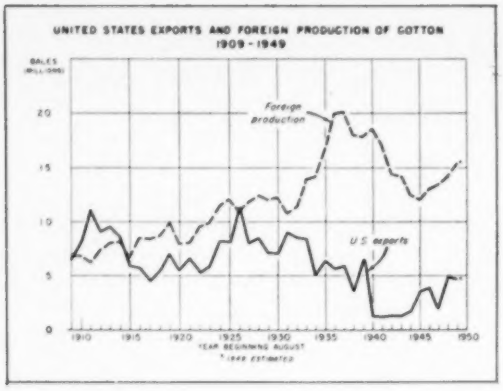


latent resources to work—a change that to some extent reduced Europe's need for raw cotton. And finally it saw great European interest develop in the products of American industrial progress—machinery of many kinds, automobiles, and motor fuels—with their mounting claims on Europe's lessening fund of dollars.

It remained for World War II, however, to complete the damage to America's cotton export trade. Of the five major customer countries that before 1939 had taken about 75 percent of all United States exports of cotton, not one emerged from the war without severe impairment of its dollar-earning power—and consequently of its ability to buy from the United States.

Thus the wars left a financial chasm between the cotton producer in the United States and his customer abroad, for whom he formerly had cultivated a full half of his cotton land. To bridge this chasm, the Congress legislated a series of emergency measures: Lend-lease, UNRRA participation, Treasury loans, special aid programs, military relief programs in the occupied areas, and, finally, the European Recovery Program. The stream of exports has been kept flowing, but fully 75 to 80 percent of it has been sustained by these various means.

The real legacy of World War II is a whole set of new questions beyond those that emergency measures can answer. How great will be the pressure on importing countries to buy their cotton where they can without dollars? How far can they and will they go in producing synthetics and falling back on them as substitutes for cotton? How far can they and will they go in producing cotton in their own territories? What stimulants to cotton production in other exporting countries will come out of the new adjustments of currencies and world trade? Finally, what can be done to preserve the export market on which the present organization of American agriculture so greatly depends?

These difficult questions are in fact but parts of deeper questions that reach to the very foundations of the world's industrial and financial organization. The search for answers is a task as much for students of international resources, trade, money, and credit as for commodity specialists. But the commodity specialists have an essential contribution to make; and, while the students of trade and finance grapple with the huge problems that confront them and with numerous plans for economic reconstruction, cotton's own students are seeking over much of the world to understand those phases of the export problem that are particularly their own.

Taking their task in manageable segments, cotton specialists from the Office of Foreign Agricultural Relations, under the aegis of the Research and Marketing Act, have already made studies in Western Europe and the Orient, as well as in producing areas of the Southern Hemisphere. A few highlights of their findings will serve to illustrate the nature of their work.

Francis H. Whitaker, onetime head cotton statistician of Agriculture's Crop Reporting Board and a Mississippi planter by upbringing, has the duty of following developments in Europe and interpreting them to the people at home. Europe, of course, is of primary interest to American cotton growers, for in the aggregate its mills have always afforded them their major overseas markets. Thanks largely to the European Recovery Program, they continue to do so. But the end of ERP aid is in sight, and Europe as yet shows little promise that it can earn enough dollars to pay for its customary imports of dollar goods. Some put its shortfall in 1953 at 2.5 billion dollars.

Mr. Whitaker finds European mills humming with activity—over-all consumption of cotton is within about 5 percent of its prewar volume—but all of Western Europe is keenly aware of ERP's approaching end and busy preparing for it. He finds these preparations pointing in three directions: (1) All countries are planning to buy as much cotton as they can in countries where their own currencies are exchangeable; (2) countries with cotton-producing territories overseas are pushing land and transport development projects, determined to bring their own production to the maximum; and (3) many countries are planning to fall back on the use of rayon to the extent that it can be made to do the work of cotton.

Rayon, a product largely of wood pulp, native chem-

icals, and coal, can be produced in immense quantity out of indigenous resources with no cost at all in dollars. Before the war Germany and Italy, caught even then in the toils of a dollar shortage, had developed production of rayon on a large scale and enforced its substitution for cotton. Their plants, much damaged in wartime, are rapidly being restored. Elsewhere in Western Europe new plants have gone up apace. Will the countries that once compelled the substitution of rayon for cotton do so again; if so, will others follow? Although much pressure in that direction is evident, especially in Italy, where rayon ranks as one of the largest industries, the answer is not yet apparent. But in Italy, as elsewhere, cotton must compete with many other items for the importer's dollar—petroleum products, for instance—and if the time comes when there are not enough dollars for all the cotton and all the other American products that Italy wants, then, say the Italians, they may curtail their consumption of cotton.

If the substitution of rayon for cotton is enforced, it will not be with popular consent. Rayon, of course, has some uses in which it is preferred to other textiles; but nowhere in Europe, reports Mr. Whitaker, do people want substitutes for cotton in the uses that cotton serves best. Where people have had most experience with substitutes, as they did throughout much of the Continent during the war, they want them least. But even without compulsory substitution, cotton faces in Europe another difficult contest with rayon—a contest in price. In early September 1949, before the wave of currency devaluations, American cotton of basic qualities in England was some 30 percent dearer than rayon staple fiber. Devaluation left the price of rayon unchanged but raised the price of cotton in sterling to a level 62 percent higher than that of rayon. Something of the kind took place over most of the Continent.

One comforting fact Mr. Whitaker brings home: Among Europe's spinners American cotton now enjoys an almost phenomenal popularity for its spinning qualities. The long-time program of improving quality and standardizing varieties across the American Cotton Belt is paying dividends. There is no room to doubt that, could the problems of payment be solved in a way to permit European spinners to act according to their preferences, Europe would buy heavily in the United States for a long time to come—provided, of course, investment in colonial cotton production and in rayon manufacture had not meanwhile gone too far.

Hardly less interesting than Europe to American cotton growers is the Orient. Across the Pacific in 1948 went Dr. Ide B. Trotter, then on leave from his duties as Director of Extension at Texas A & M College and now Dean of its Graduate School. His first destination was Japan, a country that in the course of World War I had stepped into the first rank of cotton goods exporters. After that war Japan had extended its gains until, in the early and middle 1930's, it was American cotton growers' most important customer abroad, only to wane after 1937 as, one by one, textile-importing nations closed their doors to its goods.

World War II had dealt a hard blow to Japan's cotton industry, in both a physical and an economic sense. Chiefly by scrapping to meet wartime needs for metal, Japan had reduced its aggregate prewar plant of 12 million spindles to barely 3 million—only 2.25 million of them actually working. Its military aggression had affronted its customers over much of the world. Silk,

Oriental cotton mills traditionally provide an important market for American cotton.

Japan's chief dollar winner in the day of its prosperity, had been swept down in the flood of American rayon and submerged in the tide of nylon that followed. Fishery resources, essential to its sustenance, had been reduced. The question: Would Japan come back as a major world supplier of cotton goods and as a taker of American raw cotton?

In the hot international race for cloth orders before the war, Japan had possessed at least one marked advantage. Japanese mills, by their system of recruiting workers from the farms and housing them in dormitories, had managed to keep their labor costs per yard of cloth far below those of any important competitor in the world textile trade. This practice and the admitted Japanese competence in mill operations were thought to be key factors in Japan's postwar recovery. These were special objects of Dr. Trotter's inquiry.

Dr. Trotter found Japan austerely restricting its own use of cotton goods to a point actually below the maintenance level and straining to export every possible yard of cloth. Mills were still suffering from wartime damage, but it seemed apparent that Japan would retain its prewar advantage in labor costs, and the mill combines were rebuilding slowly but hopefully. One had to look hard, however, to find by what means Japan would buy cotton in quantity from America once the flow of occupation dollars ceased. By all early indications it seemed inevitable that Japan would again draw heavily on the cotton supplies of southeast Asia, where its exports of cloth could serve as payment.

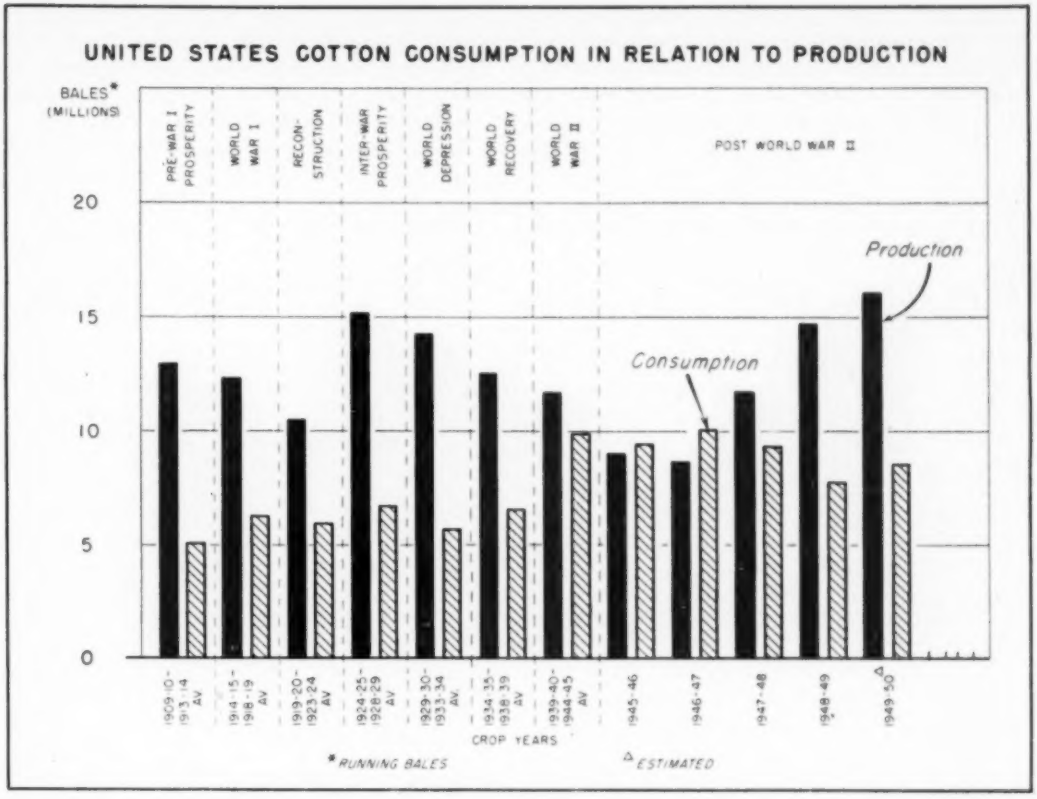
American cotton arriving at a European port.

China came next on Dr. Trotter's itinerary. There he studied the prospects for expansion of cotton growing and manufacturing, in line with China's announced intention to become a large-scale exporter of textiles and to produce all the needed raw material in its own country. Although China was working to bring the quality of its cotton up to that of the American staples, Dr. Trotter saw little likelihood of any early attainment of the larger goal under the disordered political conditions then developing.

From China Dr. Trotter flew to India and Pakistan, where, under pressure of wartime necessity, 10 million acres had been taken out of cotton and put into food production. Thereafter, partition had left the Union of India—second largest spinning country in the world—with a deficit of 1 million bales a year and placed Pakistan on the list of exporters with an annual surplus almost as large. In India, as in China, he found the country needing the imports that the United States could well supply, but troubled over the means of payment. Cotton breeders there, as in China, were striving—and with notable competence—to bring the quality of their cottons into line with that of American cottons. Pakistan, he found, had projects under way for large new irrigation developments but was facing difficulties in increasing production until those plans could be realized.

To Brazil, after an earlier turn in Europe, went P. K. Norris, Agriculture's veteran economic explorer. He looked for an answer to the question of how much of the world market Brazilian growers were likely to claim in the postwar readjustment. Mr. Norris knew Brazil well. He had first visited there 15 years earlier. Then, submerged in an overpowering coffee surplus, Brazil was turning to the "white gold" as a way out. From that time onward, cotton production had increased by leaps and bounds, even in the face of depression prices, until by 1943 Brazil picked a crop of more than 2.7 million bales, nearly 2 million of them available for export.

Then, under pressure of the wartime shortage of shipping and the need for food crops for home consumption, the Brazilian crop had gone into a sharp decline; in 4 years it had fallen to less than half of its top figure. But with the end of the war the direction had turned and Brazilian production had once more



begun to rise. Would Brazil regain its former peak, and when?

Mr. Norris got a story that statistics do not tell. Brazil, like many another country, was in the midst of a postwar city-building boom that had drained the cotton districts of much of their labor. Moreover, the chronic coffee depression was a thing of the past. Brazilians, he found, were now much more interested in growing coffee to sell to the United States for dollars than in growing cotton to sell elsewhere; and the great fazendas were giving priority to coffee in the employment of what workers they could keep. Mr. Norris learned, too, that continuous cotton cropping with too little fertilizer had had a bad effect on yields but that a fine new variety, Campinas 817, might go far to offset this handicap. But he concluded that, all in all, Brazil was not likely in the foreseeable future to boost its production of cotton to the 1943 level.

Today, far away in Africa, Mr. Norris surveys the progress and the possibilities of the new cotton production being developed there under the pressure of stern financial necessity—cotton that must be expected to have preference over American in the markets of Europe, solely because it can be had without dollars.

"He who would bring back the wealth of the Indies must take the wealth of the Indies with him," quoted Samuel Johnson from an old Spanish proverb. Cotton's travelers, long seasoned and carrying with them an abundant knowledge of the agriculture of their own country, go well provided with the trading stuffs of their profession. Their method is to state their mission frankly to the responsible officials in the countries they visit. Just as frankly do they explain the programs and policies of their own country. For as it is important that the United States know the situations in other cotton growing and consuming countries, so it is important to other countries to know what is taking place in the United States.

Dr. Trotter found great interest in India in the progress of cotton quality improvement in the United States. In Europe Mr. Whitaker meets importers and manufacturers remarkably conversant with American

production and price programs and always eager to learn of the newest developments. In such exchanges, each gains; and cotton people the world over better understand the parts they play.

Thus the search goes on abroad for facts vital to the future of cotton at home. As cotton faces up to the postwar problems that confront its export markets, it sees no easy solution. For whatever the solution, it will call for all the understanding of conditions both at home and abroad that earnest study can gain.

Indices of Agricultural Production in the ERP Countries

The Office of Foreign Agricultural Relations here publishes for the first time its gross indices of agricultural production in the countries participating in the European Recovery Program (ERP). These indices were originally prepared as a restricted document for the Economic Cooperation Administration to provide a measure of the agricultural recovery in these countries. The indices show the great expansion in Western Europe's agricultural production since the postwar low of 1947–48. Gross agricultural output in 1949–50 has come within 5 percent of the prewar level. Indications thus far are that recovery is somewhat more rapid than it was after World War I. The most significant trend in agricultural reorientation since World War II is greater self-sufficiency in feedstuffs. For the ERP area as a whole the dependence on imported feedstuffs is now little more than half of what it was in the 1930's. It is in the output of feedstuffs that possibility for expansion is greatest in Western Europe. The indices here given are preliminary and subject to adjustments. Because they are gross indices, they represent production regardless of the extent to which it was based on imports of feedstuffs or other materials. It is planned later to publish net indices that will not, or will not fully, include the production that resulted from imported feed. (It should be noted that a gross index understates the level of postwar output from purely domestic sources if postwar imports of feedstuffs are reduced.)

by J. H. RICHTER*

The Results

The index numbers published below clearly indicate the progress that European agricultural production has made since 1947–48. Much of this improvement no doubt was due to favorable weather and increased imports of feedstuffs, but a great deal of it must be ascribed to basic trend factors, such as larger input of fertilizer, greater mechanization, and some improvements in cultivation, feeding practices, and general management.

Measured at what amounts to constant prices, the value of gross agricultural output in the ERP area in 1949–50 has come within 5 percent of its prewar level, that of the output of livestock products alone to within 12 percent. This is much higher than in 1947–48, when total gross production was still almost 20 percent below prewar and the output of animal products 25 percent below. It must be remembered, however, that 1947–48 was a year of drought in many parts of Europe.

Among the countries whose weighted gross production in 1949–50 appears to be definitely above prewar are Belgium, the Netherlands, Norway, Sweden, and the United Kingdom. There may be some question about the increases shown for Greece and Portugal; at any rate, they seem to be due to an unusually large crop of olives. Switzerland and Italy, the latter also with a favorable olive crop, have probably reached the prewar production level.

It is only in Austria and Western Germany that gross agricultural production, though much above the postwar low point, has remained at a comparatively depressed level. This persistent deficit in the value of production compared with the prewar period—measured at constant prices—is largely due to the lag in livestock recovery in these countries, with output of animal products only about two-thirds of prewar.

Denmark, France, and Ireland are in an intermediate position of recovery—having reached more than 95 percent of prewar output.

*The credit for the work done on this subject should go to my associates in the European Division, OFAR, who have spent much time and ingenuity on it. The index is an outgrowth of our work on food balances, which began early in 1942 (see "Continental Europe's Prewar Food Balance," *Foreign Agriculture*, August 1942, and "Continental Europe's Wartime Food Balance," *Foreign Agriculture*, April 1943).

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Since the gross index measures production regardless of the imports of feed which contributed to its size, it may be well to consider briefly a comparison, postwar with prewar, of the net values produced by Western Europe's agriculture. The most significant trend in agricultural reorientation after World War II is no doubt the move toward greater feed self-sufficiency. It is a development that is emphasized and urged by the Organization of European Economic Cooperation because production reserves of Western Europe's agriculture are greatest in the output of feedstuffs. The present situation and prospective further developments in quite a number of the ERP countries, in this respect, are reminiscent of developments in some European countries after World War I, for example, Germany. "One of the most important differences in Germany's food situation in 1939 compared to that of 1914 was the considerable increase in the structural stability of domestic agricultural production. In 1909–13 Germany's agriculture found its livestock sector dependent upon the importation of feed to the extent of fully 38 percent of the total output of livestock products . . . This situation changed markedly in later years. At the outbreak of war in 1939 Germany's dependence on imported feed supplies was probably not more than 10 percent." [1]

It may be estimated, on the basis of preliminary computations made by OFAR, that for the ERP area as a whole the dependence on imported feedstuffs is now little more than half of what it was in the 1930's. For the area as a whole and for a number of individual countries this is due, not to an increase in feed output or improvements in feeding efficiency, but to lower livestock numbers and a lower output of livestock products. In some countries, however, the reduction in their dependence on imported feed supplies is rather the result of larger feed production and better utilization. This, according to those computations, seems to be true of Belgium, the Netherlands, Norway, Sweden, and the United Kingdom. Part of the increase in the output of livestock products from purely domestic resources in these countries is due to the fact that more extensive mechanization has freed feed supplies previously used for draft animals. However, even in the United Kingdom, where mechanization has been the most pronounced, it has contributed only modestly to the increase in domestic feed supplies for productive livestock. It may be estimated that about 4 percent of the total feed supplies of the country have thus been saved; on the other hand, in the past 2 years the output of animal products from purely domestic feed may have reached a level about 10 percent above prewar.

In the other countries of Western Europe the output of animal products from domestically produced feedstuffs is still below the prewar level, either because feed production has not yet reached that level or because feeding is less efficient. In turn, the former condition may be due to a continuing deficit in total agricultural output compared to prewar and/or to continuing diversion of a greater share of total agricultural production to the direct production of food rather than feed. Lower efficiency in feeding may be due to agriculture's failure to regain the postwar equivalent of its prewar organizational status (for example, in regard to labor); or it may be due to the deficit in imported feedstuffs that, with their relatively high protein content, made more efficient the feeding of domestic feed in combination with which they were used. The data available at present seem to indicate that in those countries where the output of animal products from domestic feed has not yet reached the prewar level (for example, Austria and Western Germany) the most important reason for this situation is the continuing deficit in total production from the soil compared to prewar.

A net index of agricultural production, which would give a measure of the movements in total agricultural output at constant prices to the extent that it is based upon the utilization of *domestic* factors of production, will probably show that in 1949–50 the ERP area as a whole has reached the prewar output. Our gross index indicates that production has come within 5 percent of prewar. The difference is accounted for by the fact that imports of feedstuffs in 1948–49 and 1949–50 were little more than half of prewar, with the result that gross output in relation to prewar was smaller than net output by the amount of livestock production that corresponds to that deficit in feed imports. For Belgium, the Netherlands, Norway, and the United Kingdom, in view of their larger output of animal products from *domestic* feed supplies and reduced output from imported feed, the net indices will show considerably higher postwar total production than the gross indices do. A net index for Denmark will also show measurably larger agricultural production in the postwar years; in this case the difference is due to the fact that the decline in the output of animal products from domestic feed was less than the decline in the output from imported feedstuffs—the latter being

[1] *Foreign Agriculture*, February 1944, p. 43.

excluded from the net index but included in the gross index.

After World War I it took 7 or 8 years to restore, in Europe, the average prewar level of agricultural production. Average production of grain and potatoes was the same in 1925–29—a period favored by climatic conditions—as in 1909–13. Sugar regained the prewar level by 1924–25. The cattle and sheep population reached the prewar level 8 years after the end of the war; hogs took 9 years. Meat and, especially, milk production attained the prewar level somewhat sooner than did numbers of the productive livestock.[2]

This time, indications thus far are that recovery is somewhat more rapid—though from a level of output in the immediate postwar period that was perhaps only 20 percent below prewar, compared with a 25-percent decline during World War I. However, substantial as the increases are that have taken place in Western Europe's agricultural production after World War II, they look slight if compared with the increase in population. The ERP area in 1949–50 must feed 22.5 million people, or 10 percent more than in the middle thirties. Agricultural production, on the other hand, is within 5 percent of the prewar level. Even with considerable further expansion of production until 1952 it seems probable that the import deficit for foodstuffs and feedstuffs will remain large at the end of the ERP period.

The Method

Basic Data and Hypotheses

It was postulated throughout the analysis that food output is representative of total agricultural production, including production of the minor industrial crops that ERP countries produce. In the case of Greece, a separate allowance has been made for the inclusion of such a major item as tobacco.[3] The basic data used as factual material are the food balances of the European Division, OFAR. The production counted was the production of individual commodities consumed for food. Production of feed and animal draft power was counted, not separately, but in the output of the foodstuffs into whose production they ultimately enter. In this way, an approximation to the total food output in each of the countries examined was obtained. A cursory review of price relationships in the prewar base period yielded the following scale of value weights for foodstuffs.

Food calories in—	*Weight*
Flour and cereal	1
Butter, cheese	4
Whole milk	3
Fats and oils other than butter	1.5
Pork	5
All other meat	8
Eggs	8
Vegetables	10
Fruit (fresh equivalent)	10
Nuts	2.5 or 3
All other food products	1

These value weights represent reasonably appropriate relationships between the price of 1,000 calories in the indicated foodstuffs and the price of 1,000 calories in flour.[4] It was decided that only one scale of weights for all countries should be applied (with one or two minor exceptions). The value weights indicated are based on retail price relationships. Farm prices are not generally available. In a later attempt at revision and improvement the calculations will be carried through with a different set of weights that would more nearly represent farm price relationships. It is to be assumed, however, that even a considerable change in the scale of value weights would not greatly change the index movements. Preliminary experiments with a tentatively assumed set of farm price relationships confirm this expectation.

Domestic Food Output Defined

For all those products that have only food uses, this definition is obvious. For fats (excluding marine oils)[5] the definition is that only that part is counted as food that was produced for food.[6] For grains and potatoes, it was assumed that all consumption for food is to be counted as from *domestic* production to the extent that such consumption did not exceed actual

[2] Cf. N. Jasny, "Decline and Recovery in European Agriculture. World Wars I and II," *Foreign Agriculture*, April–May 1946. It is true that Dr. Jasny's estimates refer to all of Europe, while our study concerns the ERP area only. Yet, Jasny's statements are sufficiently broad to apply as much to that region as to the wider European area.

[3] No indices have been calculated for Turkey.

[4] This method, in its results, is identical with one that would use, not calories produced, but production in terms of original units of weight, and not prices of calories, but prices of the original weight units.

[5] Production of marine oils and fish was excluded from the series of production figures considered since these items should not be regarded as *agricultural* output.

[6] The assumption implicit in this procedure is that total fat production varied in direct proportion with food fat production.

domestic output minus seed and waste. For bread grains this assumption implies that feeding and industrial uses, if any, *have been made possible by imports* even if, in actual fact, it was part of the *domestic* supply, rather than the imported type, that was fed or industrially used. It was considered that this methodological rule is more appropriate to the purpose of representing agricultural production than any other uniform rule that could have been applied. The difference between it and any other method, as far as the index is concerned, largely disappears when, in a net index calculation, deduction is made for imports of feed. This is because such a deduction is equivalent to a largely offsetting subtraction of larger or smaller quantities of livestock products produced from imported feed, as between the chosen or an alternative method.

Weighted Gross Index

The methods briefly described above give a first approximation to an index of gross agricultural production, which represents gross value. A subdivision of the index gives a separate series for livestock products.

"Production"—Partly Capital Formation or Capital Consumption

In order that an index be fully representative of current production, it should make allowance for the fact that, for example, meat output in any one year may not be exactly equal to the total growth of meat on livestock during that period, but may exceed that growth or fall short of it. In the former case the excess represents capital consumption although conventional production statistics report it as production; in the latter case the excess of growth over slaughter is still production, though necessarily excluded from the statistics reporting production. An index of meat output based on production statistics, therefore, only in rare cases represents actual production of meat during the given period. Similarly, unless special adjustments are made, an index of agricultural production does not reflect the changes in the growth, positive or negative, of livestock capital represented by such livestock as dairy cattle or draft animals. It is extremely difficult to make allowance for all these factors; they have, for the time being, been neglected in the construction of the gross indices. Changes in acreages and condition of growing crops and in feed stocks from one year to the next—the lag between the production of feed and its appearance in the form of livestock output—present similar difficulties that had to be neglected.

Check Series

Alongside the weighted index of gross agricultural production, two check series are given for comparison purposes. The first is an index of gross agricultural production based on so-called grain values. This is a *weighted* index as developed by Professor Woermann at Halle, Germany.[7] It tries to take account of the relative value of protein by assuming a value of 2.5 for a calorie from digestible protein, with the carbohydrate and fat calorie having a value of 1. The value figures thus found are considered to represent nutritional value and are related to the thus ascertained nutritional value of grain. A quantity of 100 kilograms of grain on this basis is given the grain value of 1. All production, therefore, is expressed in terms of this grain value. In the case of livestock products the resulting foodstuffs are valued at the grain value of the feedstuffs that go into their production. Products that are neither foodstuffs nor feedstuffs, such as tobacco and fiber crops, are included in this index and are valued at the grain values of foodstuffs or feedstuffs that have similar soil and labor requirements, in other words, that take about the same productive effort in their production. The check series thus constructed is almost entirely based on Woermann's method; only minor adjustments were made, mainly for the inclusion of fruits and nuts. The assumption also was made that the grain values are to be applied to the "food output" as defined above. Woermann's own definition of food output is not revealed in his article but it is unlikely to differ significantly from the concept here applied.

The second check series is an index of simple energy production or calorie output that adds together, in unweighted fashion, all food calories produced.[8] This is an index whose comparison with weighted gross and net indices of agricultural production in most cases shows the relatively more favorable development of the production of total calories in times of emergency as a result of forced deterioration in the quality

[7] "Ernaehrungswirtschaftliche Leistungsmasstaebe," in *Mitteilungen fuer die Landwirtschaft*, vol. 59, No. 36, Sept. 2, 1944.

[8] The calorie conversion factors applied are those of the Combined Working Party on European Food Supplies, London, 1944–45. A later revision will apply the new factors developed by the Food and Agriculture Organization of the United Nations that should somewhat change the index of simple energy production.

of the food supply—a deterioration that it is even advisable to bring about deliberately in emergencies in order to safeguard total energy supplies. (Witness European policies in the last war and in the early postwar period.)

The intent behind the computation of two check series was to compare the index with results obtained on the basis of other methods and to point up differences where such differences are significant.

Some Aspects of the Indices

In connection with the basic evaluation of food production in terms of calories, changes in the *utilization* of crops affect the unweighted calories index. For example, as a result of changes in milling extraction or diversion to human consumption of products formerly fed (coarse grains, potatoes), the index shows an increase in production if, for instance, extraction rates are raised or more potatoes are eaten, even though total production of grain and potatoes may not be larger. This is due to the fact that more energy for human consumption is obtained if crops are used directly for food rather than converted to food through feeding of livestock.

On the other hand, the *weighted* (total) gross index as here computed is affected by such changes in the utilization of crops only to an insignificant extent. A decline in the output of livestock products, for example, which would result from less grain being available for feeding because of high milling extraction, would have about the same weight in that index as the corresponding gain in flour calories. This equivalence, of course, is due to the much heavier price-weighting, in the weighted index, of the food calories from livestock products, compared with those from flour.[9]

Subdivision of Indices: Crops-Livestock Products

The present index of gross production has been subdivided in a preliminary way, giving a series that would represent the output of livestock products separately. A subindex of crop production is not included in the present statement since the short-cut methods chosen would have made it necessary to base such a subindex on the production of crops for food alone. It would thus exclude production of feedstuffs, especially grain for feed, hay, and the yield of pastures—a type of output that, in any one year, may not at all be adequately represented by the production of crops for food. On the other hand, it would not be possible to have feed production represented by domestic feed equivalents of the output of livestock products because of the problem of the various and shifting lags in such output compared to the production of the feed from which it is obtained.

Net Index of Agricultural Production

A net index has been calculated in a preliminary way but will not be published by OFAR until further study has been devoted to the problem. The adjustment will consist in an allowance for the livestock products produced from imported feed supplies so that deductions can be made from total production in order that *net production from domestic resources* be more fairly represented by the index. Any method for making such an allowance is, of course, problematical. There are three ways that readily suggest themselves: (1) The imputation to imports of feed of the total index value of the livestock products produced from imported feed, thus excluding from domestic output the full index value of such livestock production; (2) the deduction for livestock products produced from imported feed to be made to the extent of the original feed calories used up in their production; (3) the deduction for livestock products produced from imported feed to be made on the basis of price relationships between feed and the livestock products produced therefrom.[10]

It is probable that the last method would be the most reasonable to apply though the first has its advantages. Method No. 1 would impute to the imports of feed the total index value of the livestock products produced from imported feed, on the theory that without that feed those livestock products could not have been produced at all. This is just a special case of the imputation to one factor of production of the total value of the product, although other factors participate in making that production possible. (This is a problem well known in economy theory.)

There is a further factor that complicates the question of making allowance for imported feed. It is the

[9] This equalizing quality of the *total* weighted index does not, of course, attach to any subdivisions for crops and livestock products separately.

[10] This latter method, in fact, would be equivalent to not counting as domestic production the original value of the imported feed contained in the value of the livestock products, whereas the value added as a result of the application of domestic labor and the utilization of additional domestic resources in the production of such livestock products *would* be counted as domestic production.

TABLE 1.—*Gross indices of agricultural production in ERP countries* [1]

[100=prewar production]

Country and period	Agricultural production (weighted by value)		Check series			
			Agricultural production (grain value basis, weighted)		Food calorie output (unweighted)	
	Total	Livestock products only	Total	Livestock products only	Total	Livestock products only
Austria:						
1947–48	64	55	63	60	69	53
1948–49	69	57	66	60	70	55
1949–50	76	63	73	66	79	61
Belgium: [2]						
1947–48	80	77	82	80	83	77
1948–49	87	85	85	84	89	87
1949–50	96	96	97	95	97	100
Benelux: [2]						
1947–48	75	68	76	70	85	69
1948–49	88	82	86	80	96	85
1949–50	100	95	100	94	106	99
Denmark:						
1947–48	80	73	83	78	85	72
1948–49	91	79	90	83	102	79
1949–50	98	89	96	91	106	88
France: [3]						
1947–48	78	75	77	78	74	70
1948–49	94	85	92	87	105	83
1949–50	92	87	92	88	100	85
Western Germany (excluding Saar):						
1947–48	68	56	67	59	80	52
1948–49	79	63	78	65	99	61
1949–50	87	73	88	75	107	71
Greece: [4]						
1947–48	91	70	89	69	99	67
1948–49	86	73	84	71	97	70
1949–50	103	78	102	76	113	75
Ireland:						
1947–48	89	77	88	81	113	76
1948–49	93	80	90	82	118	78
1949–50	95	86	93	88	112	86
Italy: [3]						
1947–48	89	84	85	83	84	84
1948–49	94	92	90	92	91	96
1949–50	100	100	96	96	96	100
Netherlands: [2]						
1947–48	72	63	72	63	86	64
1948–49	89	80	87	78	102	83
1949–50	101	92	100	91	113	97
Norway:						
1947–48	92	89	90	88	105	91
1948–49	100	95	94	91	111	99
1949–50	105	107	102	104	114	112
Portugal: [3]						
1947–48	113	98	109	103	115	101
1948–49	97	105	99	109	94	107
1949–50	102	101	104	105	100	102
Sweden:						
1947–48	105	110	105	110	96	109
1948–49	116	112	114	111	117	113
1949–50	119	117	117	117	115	118
Switzerland:						
1947–48	92	80	88	79	105	81
1948–49	99	86	93	84	108	88
1949–50	99	91	96	90	109	93
United Kingdom:						
1947–48	92	81	87	81	105	86
1948–49	107	92	100	91	129	98
1949–50	108	96	102	95	125	101
ERP area: [5]						
1947–48	82	73	80	75	85	74
1948–49	92	82	90	83	102	82
1949–50	96	88	95	89	104	89

[1] Preliminary and subject to adjustments. Indices have been computed by the European Division, OFAR; their nature is explained in the text. They are *gross* indices of production and represent production regardless of the extent to which it was based on imports of feedstuffs or other materials. It is planned later to calculate *net* indices that will not, or will not fully, include the production that resulted from imported feed. *It should be noted that a gross index understates the level of postwar output from purely domestic resources if postwar imports of feedstuffs are reduced.* This, for example, is apparent in the gross indices for the United Kingdom; net indices would show a much higher level of postwar production from purely domestic resources.

Prewar estimates of production of individual agricultural commodities are mostly official estimates and refer to the period 1933–34 to 1937–38; in a few cases it seemed necessary to correct for biased reporting. Postwar estimates of production of individual commodities, in a large number of cases, have been revised for under-reporting. Estimates of utilization of supplies are those of the European Division, OFAR. Estimates for 1949–50 are preliminary projections based on present information on production and probable imports (for feedstuffs).

No indices have been calculated for Turkey, Luxembourg, and Iceland. Indices for Benelux are the weighted averages for Belgium and the Netherlands.

[2] First column excludes fruit whose large crop fluctuations may make inadvisable the inclusion in the weighted index of proportionate fluctuations in the value of production.

[3] First column includes wine; others do not.

[4] First column includes tobacco and wine; others do not.

[5] Excluding Turkey, Luxembourg, and Iceland. Indices in the first column include wine for France, Italy, Portugal, and Greece and tobacco for Greece; they furthermore exclude fruit for Belgium and the Netherlands (and Benelux)—see footnote 2.

lag in the output of livestock products compared to the importation of the feedstuffs from which they are produced. Imports of feed during any one 12-month period are likely to be reflected, in part, in the output of livestock products not during the same but during the subsequent period. It is difficult to take account of this factor that, however, should find some consideration in a refined net index of agricultural production. Generally, the lags that exist and shift from year to year, between the production as well as importation of feedstuffs and the output of livestock products, make the computation of indices for 12-month periods somewhat problematical. (The lags are reinforced by movements in feed stocks about which there is little information.) A comparison of a "postwar level" of production (over a period of years) with a "prewar level" would perhaps be better although such a comparison is handicapped by the fact that reconstruction and adjustments are still under way and a "postwar level" of agricultural production in Europe, in a relevant sense, has not as yet been established.

Finally, in considering the possibilities and possible uses of a net index of agricultural production, it should be noted that even the best net index will not be completely "net." That it does not represent net production or added value in the sense of national income analysis is obvious. However, net indices usually do not even represent net production in a cruder sense that would take account at least of all *imported* factors of production. Even though imports of fertilizers, farm machinery, seeds, and other means of production also account for part of the total agricultural output of the country, the net indices make no allowance for these factors.

The Estimates

The actual estimates made of agricultural production are represented by the gross indices given in the preceding table. The table should be used in conjunction with the text.

Land Reform in Formosa

by **WOLF I. LADEJINSKY**

For many generations the tenant farmers of Formosa tilled their small plots of ground under a system of landlordism that charged exorbitant rents and imposed uncertain tenure. But in April 1949 the Provincial Government of the island, with the consent of the Nationalist Government of China, initiated a reform program that cut the rentals to 37.5 percent of the main crop and gave the tenants greater security of tenure.

The future of this program is promising, although there are obstacles to its success: The program itself has some flaws, it is opposed by the landlords, it is not everywhere well enforced, and the drive that supports it comes mainly from outside the ranks of the farmers. But the tenants already feel its benefits and there is a strong possibility that the rent-reduction program will succeed and go far in improving the economic and social conditions of most of the farmers in Formosa.

In September 1949 I visited the island to observe at first hand the conditions that had called for relief, the nature of the program, reactions to its provisions, the extent of its enforcement, and any benefits that might already have appeared. I visited 11 districts, which included every important agricultural region in Formosa. There I talked with landlords, owner farmers, tenants, and local officials. I talked with them in large groups in the village offices and halls, and in small groups or as individuals in the fields, rice mills, fertilizer-distribution stores, wayside eating places, and general stores.

At first glance, Formosa appears prosperous. Agriculture is its mainstay; and on its more than 2 million acres of arable land, rice, sugarcane, and citrus fruits are produced in abundance. The people are hard-working, and their carefully tilled fields stretch away on all sides of the west coast of the island. But this

Formosan farmers raise their fists to register support of the land-reform program.

look of wealth is illusory. The tenants of Formosa, who constitute two-thirds of the island's people, suffer from undernourishment, disease, and poverty.

Many factors have contributed to these conditions, but the principal one is that Formosa, though to a less degree than other regions of Asia, has too many farmers and not enough land. A total cultivated area of 2 million acres is worked by 530,000 families, less than 4 acres per family. As a matter of fact, more than half the farmers cultivate no more than an acre or two.

But it is not only the small holdings that contribute to the low economic standard of the average farmer. It is also the fact that so much of the land in Formosa is owned by so few that the amount of land a farmer cultivates has little relation to the amount he owns. Only about 33 percent of the farmers are owners; 27 percent are part owners and part tenants; and 40 percent are tenants who own no land at all.

The conditions under which this widespread tenancy had operated in Formosa before the days of land reform were onerous.

First, the rents had been far above the level justified by the productivity of the soil. Usual rents had been 55 percent to 60 percent of the crop; but rents as high as 70 percent had not been unknown. And when the tenant's other expenses were included—high-priced fertilizer, seed, and equipment, and the buildings on the land—his total costs had been as much as 75 percent of the crop. He also had had to pay the landlord a large deposit for securing his lease; in some instances it was the equivalent of 2 years' rent. The deposit alone had been enough to prevent many a farm laborer from becoming a tenant, much less an owner.

The touchstone of a tenancy system is whether a tenant can become an owner. Tenant and landlord both said that the income of the average tenant had been so small that he could not buy the acre or two that he rented. My question to the tenants, "Do you want to buy land?" was often greeted with good-humored laughter. And then they would turn the tables on me and ask how I would buy land with no money. Many tenants told me that even if they had lived twice as long and worked twice as hard, they could not have saved enough to acquire the small plots they farmed.

The second basic flaw in the tenancy system as it had existed in Formosa was the uncertainty of tenure.

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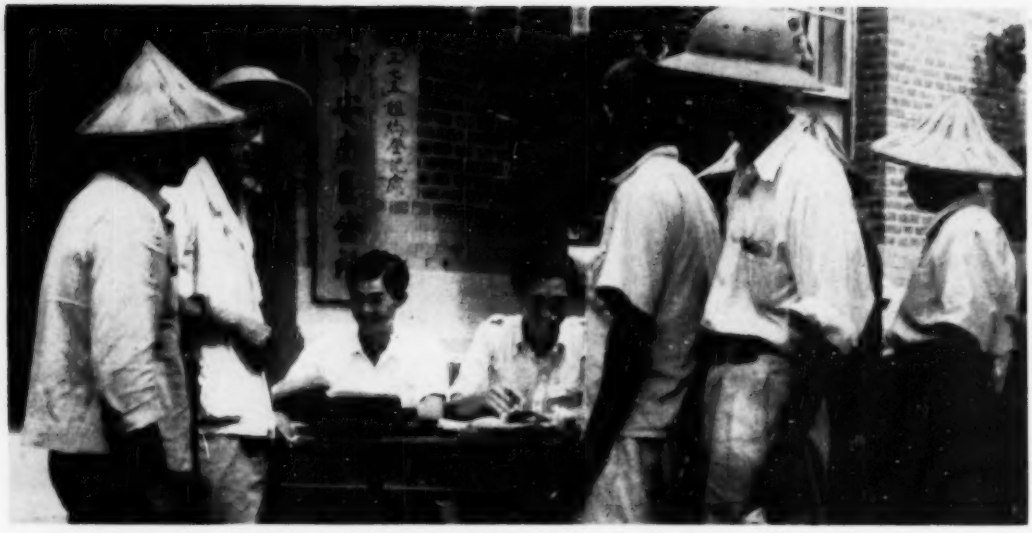
Planting rice in Formosa. Under the new rentals, farmers will receive a larger share of their rice crops.

Where competition for land is as keen as it is there, the right of a tenant to remain on his land is of utmost importance. The life of a written contract between landlord and tenant had been from 1 to 3 years, the yearly lease having been the most common; but, written or oral, the lease had afforded little protection. Many complained about the ease with which landlords had cancelled leases in order to get higher rental from others. And rarely had the dispossessed tenants received compensation.

Visits with farmers on their own homesteads revealed the inadequacy of Formosa's farm economy. Such visits bring the economic inequities into sharp focus. A great many of the farmers had little or no rice to carry them from crop to crop; in principal rice-growing districts more than 30 percent of them fell into that category, and in the southernmost part of the island, in the village of Shin-Lin, approximately 70 percent did. And of all the farmyards I have seen in the Far East, Southeast Asia, and the Middle East, that of the Formosan tenant farmer came close to



Farmers register new leases obtained under the land-reform program.

being among the worst, in both appearance and equipment.

The social and political inequities were just as sharply drawn. Every community in Formosa was divided into two kinds of citizens—first-class and second-class—and the first-class were invariably the landlords. The discrimination showed itself everywhere, in meetings of landlords and tenants, in attitudes of officials, and in the village office. As long as these conditions persisted, it was idle to seek for stability in rural Formosa. What one was likely to find instead was fertile ground for political extremism and civil dissension.

The first aim of the rent-reduction program—to relieve the heavy financial burden of the tenant farmer—is implemented by several provisions, but the provision that is most important and basic is the one that puts a maximum limit on rent—37.5 percent of the main crops. Moreover, if the yield is less than 20 percent of normal, the tenant is to be free of rent payment. To determine the rent due from each holding, the Government has classified all the cultivated acreage into 26 grades and specified a standard yield for each. The deposit fee also has been reduced; it must not be more than one-fourth the annual rent.

Irrigation costs are to be borne by the landlord and tenant together: the landlord will pay special charges, such as for improvement of canals, dams, and pumping facilities; the tenant will pay the ordinary year-in-year-out fees for use of the water.

The second aim of the program, security of tenure, also expresses itself in a number of provisions. No longer may landlords refuse to renew a lease merely to rerent to another tenant; and they have only a restricted right to dispossess a tenant in order to cultivate the land themselves.

Old contracts are invalidated. The new ones, which must be written and properly registered, must run for at least 3 years and must specify (1) amount of rental, (2) amount of deposit, (3) irrigation fees to be paid by each party, and (4) amount of extra rental due the landlord if he supplies work animals, seed, fertilizer, and other farm equipment.

These, then, are the principal provisions of the rent-reduction program. The body of regulations as a whole is reasonable and adequate. It is the kind of program that the Nationalist Government neglected in China proper, where reform was even more urgently needed than in Formosa.

Governor Chen Cheng had sound reasons for his determination to launch the program and to see it through to successful completion: (1) No society, he told me, can attain economic and political stability so long as it is hopelessly divided into the "have's" and the "have not's"; (2) unless the landlords make concessions, they may have to pay the price demanded of landlords in Communist China; (3) the program would give the peasantry an economic and political stake in their country. Clearly, the lessons drawn from the Nationalist defeat in China have not been

lost on Governor Chen, and he is therefore determined to brook no opposition in carrying out the program.

Immediate benefits of the rent-reduction program were obvious. From the first rice crop, a tenant could keep from 1,000 to 2,000 catties [1] of rice more than he could under the old rate; and the tenant who raises two rice crops a year will benefit to the extent of 3,000 to 4,000 catties. The significance of this gain cannot be overestimated. A basket of 50–60 catties of rice will supply many a family with food for a week, or it can be exchanged for its weight in the indispensable chemical fertilizer.

Thus the benefits accruing to tenants from the rent reduction are considerable, but only rarely will they be large enough to enable them to buy land. The landlords are willing to sell it—and at 3½ to 4 ounces of gold per acre as against 6 ounces a year ago—but the tenant is not in the market: he cannot scrape together the 4 ounces of gold. In the first 6 months of the program, tenants bought only 537 acres. In short, the rent-reduction benefits, real though they are, will not go far to gratify the desire of every tenant in Formosa to own the land he farms.

[1] One catty equals 1.3 pounds.

Generally, reactions of the Formosans to the program were what anyone might have expected: Landlords accepted it with greatest reluctance; tenants, with enthusiasm.

For the landlords, this abridgment of their excessive rights constituted a break with a profitable tradition. Only after Governor Chen Cheng had sent a few recalcitrant landlords to jail and thus made it clear that he intended to enforce the new regulations, did the landlords finally bow to the inevitable.

Only for some tenants were there obstacles to a wholehearted acceptance. They had always had a close relationship with their landlords and feared to incur their displeasure. Moreover, they looked critically on all Government actions, even on those designed for their benefit; and they will have to be convinced in a very practical way for some time to come that the efforts of the Government in their behalf are not Greek gifts. Yet another barrier to the tenants' full cooperation lies in their doubt that the program will "stick" under succeeding Governments.

Both groups have specific criticisms of the program. The tenants, recognizing that it does not put ownership of land within their reach, at least not for the time being, are eager to get the next best thing—security of

A policeman forces the return of black-market rent to a tenant.

tenure. Everywhere they emphasized that the new contract provided under the program fell short of giving them that security. They insisted that a contract running for only 3 years was not adequate and wanted it changed to 6. Their argument for the extension of the life of a lease is of course unimpeachable—that it would materially heighten their incentive to invest in improving the land and increasing production.

The landlords spoke freely in opposition to the land-grading system on which the 37.5-percent rental rate is based. In the main, their criticism was justified. They contended that in revising the grading system the Provincial Government had set the standard yields at levels considerably below the actual yields. The result was that in practice many a tenant paid not a 37.5-percent rental but something lower than that, in some instances something closer to 30 percent of the crop.

What the landlords wanted, in effect, was a flexible rent, one that would have to be determined each year, depending on the yield. This procedure would be a cause for dispute between landlord and tenant and, above all, would tend to thwart the tenant's ambition to improve the land and increase production. A more satisfactory answer would seem to be a fair adjustment of land grades and standard yields, with periodic revisions approximately every 5 or 10 years. The Government recognizes this shortcoming of the program and plans to provide for its correction.

At the time of my visit, the program had been operating for only 5 months, and it was far too early to determine whether all provisions were being carried out; but the first rice crop had already been harvested, and one could determine the answer to the most important question: Were tenants paying the 37.5-percent rental rate or the old one?

There was evidence that almost all were complying with that provision. There were exceptions, however. Seldom did anyone admit that he was not paying the new rate, but all knew about tenants who were not. Other evasions included illegal disposition of tenants; failure to negotiate new contracts; changes in the wording of the contracts; advanced payment of rent; and irregularities in the paying of water fees, assigning correct yields, calculating rentals. Some of the evasions, like dispossession, were by the landlords alone; others, like exaction of black-market rent, were by the landlords and the tenants. But in the face of the deeply rooted tradition of landlordism, these deviations were not surprising; and it was encouraging to find that they did not occur often enough to constitute a threat to the program's success, or even a serious impediment to its progress.

Not all the faults of the program are intrinsic in the program itself. Some weakness may be imputed to the fact that though the program was designed for the benefit of the great masses of people, it is being carried on without their participation. Authors of the reform had provided for rent campaign committees, composed of landlords, tenants, owner-cultivators, school principals, village heads, police officials, and others, in order to facilitate enforcement. But these committees were mere paper organizations. In village after village I found that they seldom met, that instead the execution of the program was dependent entirely on the drive of the Government. Had the committees been active, they could have been a great boon not only for the immediate purpose for which they had been formed but also for the economic, political, and social welfare of the community. The Land Commissions of Japan, which were created to administer the Japanese land reform and which developed a form of adult education and new village leadership among the tenants, are an excellent example of what could be accomplished in Formosa. Without some such participation of the people it is rather difficult to change the customary conduct of village affairs and the customary ways of thinking about them.

There are certain agricultural problems, such as farm credit and the services of cooperatives and experiment stations, that are not touched upon by the Formosan rent-reduction program. These are the things that were largely responsible for the development of the island's agriculture under the Japanese, and Formosan farmers keenly feel the lack of them now. Under the Japanese, the credit system was part and parcel of a widespread cooperative network that disseminated agricultural knowledge, distributed fertilizer, and supplied farm credit. It enabled a farmer to secure a loan at a reasonable interest rate. But now there is no credit system of any consequence. Securing credit means borrowing from private individuals at interest rates ranging from 150 to 200 percent.

But that is not to say that the need for these services is being ignored in Formosa. On the contrary, the Joint Commission on Rural Reconstruction (JCRR)[2] is concerned with the problems of agricultural services to farmers. A good example of what is being accomplished along these lines is the marked

[2] The Commission, made up of Chinese and American members, was created in 1948 to engage in agricultural reconstruction as part of the American aid to China.

improvement in the fertilizer supply, a matter of utmost importance to the Formosan farmer.

JCRR is concerned with the reorganization of the farm cooperatives, which played a vital role in the agricultural economy of Formosa in the past. If the burdens of indebtedness and usury are to be avoided and if the farmers are to engage in marketing activities on a more sound basis, good credit and cooperative systems must somehow be provided. These, in addition to the technical improvements that are being effected by JCRR in Formosa, are the sureties that will enable an industrious and efficient tenant to maintain his newly acquired gains.

The role of JCRR in initiating the rent-reduction program was an important one. It gave technical advice, as well as financial assistance for such activities as printing new contracts and paying salaries of registrars and supervisors for a limited period of time. Had JCRR aid been lacking, the program would not have gone so far as it has, either quantitatively or qualitatively. Without this aid it is not likely that so many new contracts would have been drawn up or that so many tenants would have paid rents on the new basis. Although during the period under consideration the amount of money spent by JCRR for the rent-reduction program was only $30,000, it is no exaggeration to say that approximately 300,000 farm families benefited from the expenditure—a demonstration of how much can be accomplished with a little money when it is judiciously spent.

Such, in the main, were my observations of the rent-reduction program in September 1949. It came into being because the need for it was deeply rooted in the rural conditions of the island. No observer of the program can fail to notice some of its shortcomings, but these do not constitute insuperable problems. Even the most serious of them, such as the land-grading system, can be solved, though it is doubtful that the opposition of the landlords will ever be completely overcome.

As land-reform programs go, the one in Formosa may well be placed in the category of mild ones. But even the mildest of programs would have called for a reduction in the income of the landlords. In no other way can the standard of living of the Formosan tenants be raised dramatically and quickly. Nor has the Government any other means of securing the political support of the tenants and achieving the kind of stability from which the landlords themselves stand to gain most—the preservation of their lives and property. The fact that there is opposition, therefore, is no argument against land reform so long as the need for it is urgent and the program is not confiscatory—two conditions that apply in Formosa.

The Development of an Eastern European Trading Bloc

by **DORIS DETRE RAFLER**

The postwar years have witnessed the emergence of an economic bloc in Eastern Europe under the domination and leadership of the Soviet Union. The existence of this cohesive trading area is already influencing the structure of trade between the countries of Eastern and Western Europe and, to a lesser extent, between these countries and the rest of the world.

A significant factor in postwar European trade has been the growing importance of the USSR in the economy and trade of the satellites. During the middle 1930's Eastern Europe [1] supplied less than 5 percent of Soviet imports and took less than 5 percent of Soviet exports. Finland, Poland, and Czechoslovakia accounted for almost all of that 5 percent. By 1948, it is estimated, the physical volume of intra-Eastern European trade had increased threefold over prewar, with the expansion of trade between the USSR and the satellites accounting for most of the increase. Soviet-satellite trade in 1948 was estimated by the United Nation's Economic Commission for Europe at $650 million; trade agreements indicate that trade during 1949 increased considerably over the 1948 level. At the

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[1] Not including Eastern Germany or Yugoslavia.

same time, trade among the satellites had also increased in importance. Before World War I the trade of Poland,[2] Finland, and the Danubian countries with each other accounted for about one-fifth of their total trade; by 1948 this proportion had risen to about one-half.

This trade expansion was accompanied by the appearance of a system of economic coordination between the Soviet Union and the satellite countries, developed by means of direct economic penetration (resulting in noncommercial commodity transfer), bilateral trade agreements, and, more recently, currency changes. The economies of the satellites were in process of transformation as the state increasingly assumed control of all economic activity, including foreign trade. Their foreign trade became one of the means of implementing the economic plans of the satellites and orienting them toward the economic and political plans of the Soviet Union.

The occupation of Eastern Europe by the Red Army made possible the direct control of the economies of the smaller countries, of which the flow of commodity trade is but one aspect. As a result of the war, Russia received much of the resources and current production of Eastern Europe in the form of transfer of territory, occupation costs, reparations, and so forth. On the basis of bilateral agreements the USSR took over German assets in some of these countries, including assets acquired by Germany under duress. In a number of countries, notably Rumania and Hungary, the USSR has used these assets to form so-called *joint companies* owned by the respective local governments and by Russia. By this means the USSR now controls a large segment of the industries, transportation, and finance of most of these satellite countries. Profits often arbitrarily predetermined by Soviet edict are transferred to Russia in the form of commodities. Additional noncommercial flow of commodities from the satellites to the USSR has been in the form of war booty; requisitions for the support of occupation troops; replacement of property, including livestock removed from the Soviet Union; and deliveries of goods for foreign exchange in lieu of German assets.

State control of the economies of the satellites was accompanied by the promulgation of national economic plans. These plans project the industrialization of the satellites and the partial shift in their agricultural output to industrial crops; if successful, they will decrease their dependence on industrial imports formerly supplied by Western Europe, primarily Germany. The domestic developmental plans, pointed toward full economic collaboration with the Soviets, find an expression in balanced bilateral agreements stipulating quantities, specifications, and prices, the latter until recently stated in dollars. As the export potential of the USSR and its satellites has recovered from war devastation, with the commercial trade between them geared to the respective developmental plans and trade with Western Europe curtailed, the successive bilateral agreements have been annually revised upward in terms of value. Similarly, the agreements of the Eastern European countries among each other have reflected increasingly important economic ties.

The early postwar agreements between the Soviet Union and the satellites provided for Soviet exports of some grain, but primarily of raw materials such as cotton, flax, iron ore, and commercial fertilizers. Soviet imports consisted largely of textiles and other products manufactured from the raw materials it had shipped and such traditional exports as Poland's coal, Rumania's petroleum products, and Finland's timber and lumber. More recently, long-range agreements involving credit facilities have been signed. For instance, as part of its agreement with Poland, Russia agreed to furnish, on medium-term credit, equipment for a new iron and steel mill, for power plants, and for chemical and cement plants; and an agreement with Czechoslovakia provided for a loan of gold and convertible currency to be used by Czechoslovakia in purchasing industrial goods the Soviets could not supply. USSR exports to the satellites continued to be made up mostly of raw materials and grains. Satellite exports continued as described above, with increasing deliveries of manufactured goods to the USSR. Provision has repeatedly been made for balanced trade, but in actual practice, as a result of the price and other trade policies of the USSR, the commodity movement has favored the Soviets and kept the total international trade of the satellite countries at a low level.

The Soviet Government fixes the import price for satellite goods and sets the value of its own exports at considerably higher levels. In addition, Soviet deliveries have often lagged, and credit balances presumably have accrued to the satellites in Moscow.

A formal expression of economic collaboration between the Soviet Union and the satellites is found in an agreement signed in January 1949 between

[2] Prewar and postwar figures for Poland are not comparable because of territorial changes.

Russia and five of the other countries for the periodic exchange of economic experience and mutual assistance in technical and commodity matters. The Soviet press also has referred to a system of coordination between the various satellites in production and hence in trade programs. This is supposed to lead to joint production plans of the various countries, and has resulted in a complete network of bilateral agreements between the satellites themselves. Another aspect of this collaboration was the existence during the past year of certain triangular trade agreements between the Soviet Union and the satellites. One between the Soviet Union, Czechoslovakia, and Finland provided for Czech exports of sugar, machinery, chemicals, and other products to Finland; the export of traditional Finnish goods of an equal value to the Soviet Union; and the shipment of 42,400 metric tons of Soviet wheat to Czechoslovakia. A similar agreement between the USSR, Poland, and Finland provided for the importation of 1.25 million metric tons of Polish coal by Finland, and the shipment by Finland to the Soviet Union of prefabricated houses, lumber products, copper products, and wooden fishing trawlers and tugs. In this agreement, credits presumably were established as a result of the Polish shipments to the Soviet Union since the agreement was supplementary to the 4-year bilateral agreement signed in 1948.

The recent revaluating of the Soviet ruble (raising of the legal foreign exchange value by 32 percent) may be interpreted as another means of consolidating Eastern European trade relations. The revaluation followed press reports of the establishment in Moscow of a central ruble pool, on basis of which trade balances between Russia and the satellites were to be settled in Soviet currency rather than in terms of dollars. The Soviet Union could benefit from the revaluation of the ruble in that it will result in a smaller payment by Russia for its purchases and a larger payment by its customers for the same amount of goods. Actually, by means of the pricing policies noted above, the Soviet Union is already accomplishing this.

The immediate effect of the revaluation is about a 25-percent cut in the blocked balances (computed in the form of dollars) accumulated in Moscow in favor of the satellites that have had an export surplus with

the Soviet Union. As to the trade agreements currently in effect, the satellites will have to increase their shipment to Russia by about one-third in order to fulfill the existing balanced agreements. These implications may not work out in practice.

The Soviet trade agreements with some satellites provide for the Soviet Union, as an exporter of raw materials, to use the processing facilities of the satellites for the production of goods eventually destined for the USSR. Under the current agreement with Czechoslovakia, for instance, Soviet shipments, in addition to including large quantities of grains, will include cotton, wool, hemp, jute, 1.3 million tons of iron ore, ferro-alloys, large quantities of nonferrous metals, petroleum products, synthetic rubber, industrial timber, chemical raw materials, and roller bearings; Czech exports are to include textiles, steel products, locomotives, machinery, sugar, and shoes. The 1949 and 1950 agreements with Rumania provided for Soviet exports of cotton, iron ore, metals, coke, and industrial equipment in exchange for such goods as petroleum and forest products, locomotives, railway cars, barges, and chemicals. The agreement with Hungary similarly provides for Soviet exports of cotton, iron ore, coke, metals, industrial equipment, agricultural machinery, and timber, in return for textiles, industrial equipment, locomotives, railroad cars, barges, and so forth. The 4-year agreement with Poland signed in 1948 projected Soviet exports of chrome, manganese and iron ore, cotton, petroleum products, aluminum, asbestos, tractors, and motor cars, in exchange for textiles, steel products, railway rolling stock, and the traditional coal, coke, sugar, and zinc.

In the Eastern European trade pattern the Soviet Union appears to be reenforcing its position as a supplier of raw materials. The USSR has been assuming a central purchasing function for the account of the satellites. Soviet purchases of certain raw materials, such as rubber, wool, and cotton, evidently have not been only for direct use within that country. In 1949, it is estimated, Soviet rubber imports, mostly from Malay, totaled 105,000 tons, an amount much larger than was thought to be required for Soviet domestic needs. Postwar Soviet purchases of wool have also been at high levels: during 1948 and 1949 the USSR purchased 60 and 55 million pounds respectively from Australia and New Zealand. During 1948 and 1949 the Soviet Union bartered wheat and purchased outright 265,000 bales of Egyptian cotton, and in 1949 the USSR entered the United States cotton market to purchase 26,000 bales.[3] As noted above, these Soviet import items concurrently appear on Soviet export lists in USSR's bilateral agreements with the satellites. Petroleum products are another case in point. The Soviet-Rumanian trade agreement for 1950 calls for Rumanian exports of petroleum products to the USSR. At the same time, under its agreements with Czechoslovakia and Bulgaria, Russia will ship petroleum products to those countries, although these shipments will be supplementary to those provided for in the bilateral agreements between the satellites themselves.

There are some indications that the USSR is using the satellite countries as subsidiary export and import agencies. For instance, the USSR will deliver 460,000 tons of wheat to Czechoslovakia in 1950 under a recently concluded trade agreement. This amount of wheat appears disproportionate to Czech needs since Czechoslovakia's 1949 grain harvest was exceptionally good and the preceding crop was favorable. A net import of 100,000 tons of wheat is estimated as sufficient at the current annual rate of consumption. If stockpiling is not the main purpose of these shipments, then perhaps Czechoslovakia will try to reexport much of this wheat to Western Europe. Grains do appear as an export item in the current Czech trade agreement with Western Germany.

One of the important aspects of postwar international trade has been the slow recovery of East-West trade in Europe. During the interwar period East-West trade consisted largely of a movement of breadgrains and other cereals, foodstuffs, and timber from the USSR, Poland, Eastern Germany, Hungary, Rumania, Yugoslavia, and Bulgaria, to the United Kingdom, Western Germany, Austria, and Italy. Although most of Europe's food imports came from overseas countries, Eastern Europe in the last prewar years supplied Western Europe with a substantial part of its grain, sugar, meat, and pulse imports, as well as significant quantities of potatoes and some oilseeds, fruits, and eggs. In addition the USSR, Poland, Yugoslavia, and Rumania were important sources of timber; the USSR and Rumania also exported petroleum in considerable amounts. In exchange for these

[3] Since the late 1920's, when the Soviets were purchasing 300,000 to 500,000 bales of American cotton, large United States exports to USSR have been only sporadic as a result of the expansion of Soviet cotton production in the 1930's. The export of 147,000 bales in 1940 was the largest in recent years.

materials, Western Europe, principally Germany, shipped manufactured goods to Eastern Europe.

Despite the incorporation of the important producing area of Eastern Germany into the Soviet orbit, East-West trade during the past year was probably considerably less than half the prewar volume. Since the war, East-West trade in agricultural products has consisted largely of Soviet grain exports. The exportable agricultural surpluses of the satellite countries were severely curtailed chiefly as a result of political and social changes, population transfers, and land reforms.

The postwar trade of the Soviet Union with Western Europe, which has been based largely on an exchange of Soviet grain for manufactures,[4] has found an expression in a number of bilateral agreements. During 1949 the volume of trade between the USSR and the Western European countries was less than in 1948, even though the amount of Soviet grain available for export had apparently increased considerably over the previous year. The renewal of the trade agreements between the Soviet Union and Western Europe during the past year has been held up by a number of factors, among which is the decreased dependence of Western Europe on Soviet grain and the high prices—above those on the world market—at which it is offered.

Some of the negotiations have been hindered by Russian insistence on guaranteed delivery dates for capital goods items, guarantees that the Western governments are not able to give on behalf of their producers. Further, the Soviets often have not been willing to pay prices obtainable elsewhere by Western exporters. Also, the Soviet Government alleges that Western export control on war-potential matériel has, since March 1948, limited the goods available to the Soviets in exchange for their exports. The apparent difficulty in negotiating trade agreements between the Soviet Union and Western Europe is thought by some to result partly from Soviet anticipation of a price break abroad. Credit balances in favor of the Soviet Union held by some Western European countries, which under terms of the trade agreements were to be settled in gold or dollars on demand, are being left in the national currencies.

This does not mean that trade is at a standstill between the Soviet Union and Western Europe. In a number of instances, Soviets have found it desirable to deal directly with Western importers and exporters since they were not able to receive special concessions under formal trade agreements.

The program for Soviet integration with the satellites, though here discussed from the economic standpoint, obviously is motivated by politics. Its accomplishment is still in considerable doubt. In part it depends on the success in industrializing the predominantly agricultural satellite countries of Eastern Europe. In part, on the continued ability of the Soviet Union to supply the Eastern European countries with the raw materials and other goods so necessary for industrial production. In part again, on the continued ability of the satellites to ship to the Soviets industrial goods, such as locomotives, the shortage of which is likely to hamper their own economic development. The entire creation of the bloc is geared to the needs of the Soviets and not of the satellites. The economic advantages of satellite cooperation with the West would be great, but they are obviously outweighed by political considerations.

[4] See Lazar Volin, "Russian Grain on the International Scene," *Foreign Agriculture*, May 1948, pp. 98–100.

Thus far in 1950 the Office of Foreign Agricultural Relations has published four reports in its Foreign Agriculture series:

Harlan, C. L. *United States Wool and Its Relation to the World Situation.* For. Agr. Rpt. 48. 9 pp. April 1950.

Hopkins, John A. *Mexican Farm Wages and Farm Labor Productivity.* For. Agr. Rpt. 46. 13 pp. June 1950.

Spielman, Henry W. *Cotton Production in India.* For. Agr. Rpt. 45. 28 pp., illus. March 1950. (A companion report, *Cotton Production in Pakistan,* For. Agr. Rpt. 42, 13 pp., illus., also written by Mr. Spielman, was published in October 1949.)

Thompson, Judson. *Dry Edible Beans and Related Pulses.* For. Agr. Rpt. 47. 85 pp., illus. June 1950.

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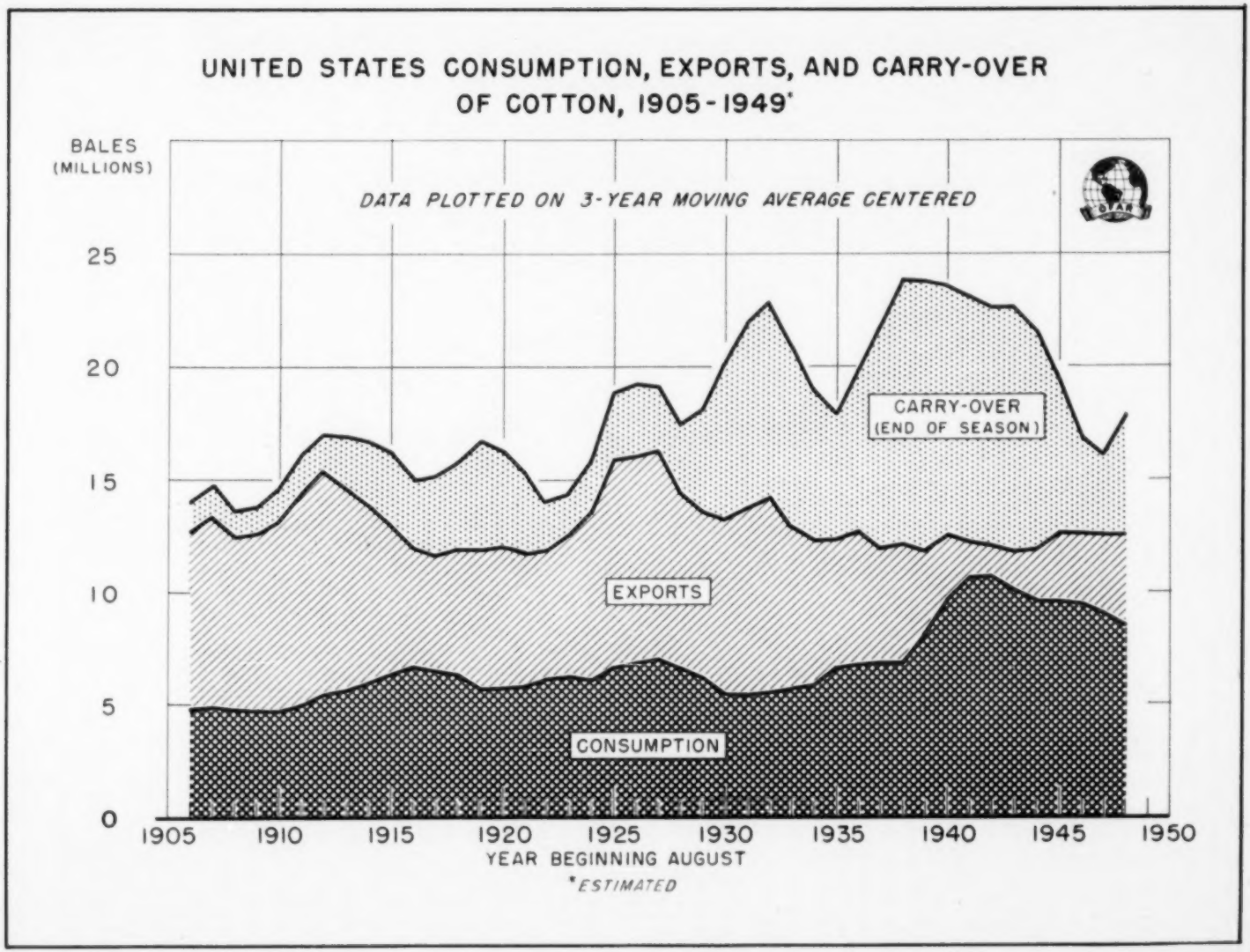
UNITED STATES CONSUMPTION, EXPORTS, AND CARRY-OVER OF COTTON, 1905-1949*
BALES (MILLIONS)
DATA PLOTTED ON 3-YEAR MOVING AVERAGE CENTERED
CARRY-OVER (END OF SEASON)
EXPORTS
CONSUMPTION
25
20
15
10
5
0
1905
1910
1915
1920
1925
1930
1935
1940
1945
1950
YEAR BEGINNING AUGUST
*ESTIMATED